PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-013624
(43)Date of publication of application : 19.01.1999

(51)Int.Cl. F04B 35/00
F04B 49/10
F16D 9/00
F16H 7/02

(21)Application number : 09-185942
(22)Date of filing : 26.06.1997

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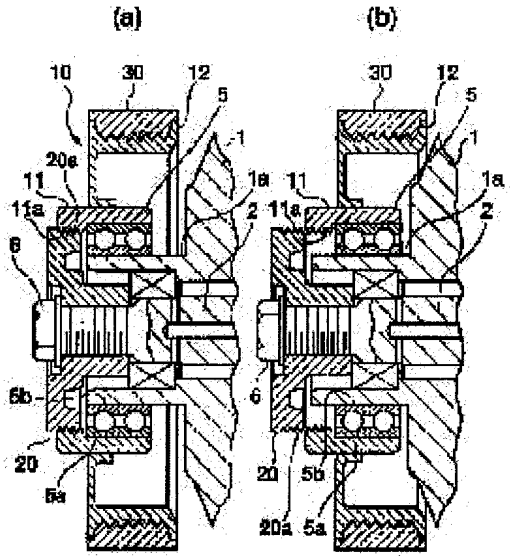
(54) CLUTCHLESS COMPRESSOR

(57)Abstract:
PROBLEM TO BE SOLVED: To prevent the fluctuation of the number of revolutions of an engine by reliably disconnecting transmission of a rotation power to the rotary shaft of a compressor from a pulley during a set overload and besides to prevent breakage of the engine and other auxiliary machines after disconnection.
SOLUTION: This compressor is formed such that the drive force of an engine is transmitted through a pulley to a rotary shaft 2 contained in a housing 1. In this case, a male screw 20a is arranged at the end part of a rotary shaft 2 protruded to an external part from the housing 1 and a female screw 11a threadedly engaged with the female screw 20a is arranged at the pulley 10. The female screw 11a of the pulley 10 and the female screw 20a of the rotary shaft 2 are separably threadely engaged with each other through rotation in the same direction.



CLAIMS

[Claim(s)]
[Claim 1]In a clutch loess compressor with which driving force of an external driving source is transmitted to a driving shaft accommodated in housing via a belt pulley with which said housing was equipped pivotable, The 1st thread part is provided in an end of said driving shaft which projects from said housing to the exterior, A clutch loess compressor providing said thread part and the 2nd thread part that can be screwed in said belt pulley, and screwing the 2nd thread part of said belt pulley, and the 1st thread part of said driving shaft disengageable by rotation to a uniform direction.
[Claim 2]The clutch loess compressor according to claim 1, wherein the 1st thread part of said driving shaft is formed in said driving shaft and one.
[Claim 3]The clutch loess compressor according to claim 1, wherein the 2nd thread part of said belt pulley is formed in said belt pulley and one.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the clutch loess compressor which transmits the driving force of an external driving source to the driving shaft accommodated in housing via a belt pulley.
[0002]
[Description of the Prior Art]In a compressor with a clutch, engine driving force is transmitted to the driving shaft of a compressor via an electromagnetic clutch.
[0003]When abnormalities, such as printing, occur inside a compressor, this compressor with a clutch cut the electromagnetic clutch based on the temperature and the pressure in a compressor, and has prevented the engine stall by the excessive load to an engine.
[0004]On the other hand, in the clutch loess compressor which does not use an electromagnetic clutch, when abnormalities, such as printing, occur inside a compressor, in order to prevent the engine stall by the excessive load to an engine, the mechanism in which the transmitting power from a belt pulley to the driving shaft of a compressor is severed is needed.
[0005]The important section cross-sectional view of the conventional clutch loess compressor which drawing 3 (a) shows a transmitting-driving-force possible state, and drawing 3 (b) are the important section cross-sectional views of the conventional clutch loess compressor in which a driving force cut off state is shown.
[0006]This clutch loess compressor 100 is provided with the belt pulley 110 which is supported by the housing 101 of a compressor pivotable via the bearing 105, and rotates on the torque from an engine, and the solid of revolution 120 with which the end of the axis of rotation 102 of a compressor was equipped.
[0007]The belt pulley 110 consists of the joining substrate 111 which adhered to the outer ring of spiral wound gasket 105a of the bearing 105, and the pulley body 112 by which fitting adherence was carried out in the peripheral face of the joining substrate 111. The pulley body 112 is connected with the engine via the belt 130.
[0008]The rolling balls 140 are put between the joining substrate 111 and the solid of revolution 120. The rolling balls 140 have fitted into the crevice 111a of the joining substrate 111 (belt pulley 110), and the crevice 120a of the solid of revolution 120, respectively.
[0009]With the bearing 105, the belt pulley 110 is energized with the spring 150 to the front-side (left of drawing 3).
[0010]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 110 is transmitted to the axis of rotation 102 via the rolling balls 140 and the solid of revolution 120 (refer to drawing 3 (a)).

[0011]On the other hand, when the load torque by the side of a compressor becomes more excessive than a preset value, the ingredient of the shaft direction of this load torque resists the spring power of the spring 150, the belt pulley 110 is energized to a rear-side, and the transmitting power from the belt pulley 110 to the solid of revolution 120 is severed.
[0012]Since the belt pulley 110 is always rotating, the rolling balls 140 secede from the crevice 111a of the belt pulley 110, and race it (refer to drawing 3 (b)).
[0013]Therefore, the engine stall by the excessive load by the side of a compressor is prevented.
[0014]Drawing 4 is an important section sectional view of other conventional clutch loess compressors.
[0015]The solid of revolution 220 attached firmly to the axis of rotation 202 with the clutch loess compressor 200 of drawing 3 to having put the rolling balls 140 in the clutch loess compressor 100 of drawing 3 between the joining substrate 111 (belt pulley 110) and the solid of revolution 120, With the two good broken pins 261,262, the joining substrate 211 which counters this solid of revolution 220 via the opening s was connected so that transmitting power was possible.
[0016]The belt pulley 210 consists of the joining substrate 211 and the pulley body 212, and the pulley body 212 is connected with the engine via the belt 230.
[0017]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 210 is transmitted to the axis of rotation 202 via the joining substrate 211, the good broken pin 261,262, and the solid of revolution 220.
[0018]On the other hand, when the load torque by the side of a compressor becomes more excessive than a preset value, in order that this load torque may concentrate on the good broken pin 261,262 and the good breaking parts 261a and 262a of the good broken pin 261,262 may fracture, the belt pulley 210 is raced.
[0019]Therefore, the engine stall by the excessive load by the side of a compressor is prevented.
[0020]
[Problem(s) to be Solved by the Invention]However, since the rolling balls 140 which seceded from the crevice 111a of the belt pulley 110 repeat fitting and secession to the crevice 111a along with rotation of the belt pulley 110 according to the clutch loess compressor 100, The belt pulley 110 and the solid of revolution 120 repeat intermittence, the torque variation to an engine is repeated, and there is a possibility of fluctuating engine number of rotations.
[0021]According to the clutch loess compressor 200, the good broken pin 261,262 gets fatigued by repetition of an engine torque variation, The good broken pin 261,262 fractures also in the condition of use below the set-up overload, the fragment of the fractured good broken pin 261,262 disperses, the situation of being caught between the belt pulley 210 and the belt 230 occurs, and there is a possibility of damaging an engine and other auxiliary machine classes.
[0022]This invention was made in view of such a situation, that technical problem refuses certainly transfer of the rotational motion power from a belt pulley to the axis of rotation of a compressor by the set-up overload, and change of engine number of rotations can be prevented, And it is providing the clutch loess compressor which can prevent breakage of an engine or other auxiliary machine classes after separation.
[0023]
[Means for Solving the Problem]In order to solve the above-mentioned technical problem a clutch loess compressor of the invention according to claim 1, In a clutch loess compressor with which driving force of an external driving source is transmitted to a driving shaft accommodated in housing via a belt pulley with which said housing was equipped pivotable, The 1st thread part is provided in an end of said driving shaft which projects from said housing to the exterior, Said thread part and the 2nd thread part that can be screwed are provided in said belt pulley, and the 2nd thread part of said belt pulley and the 1st thread part of said driving shaft are screwed

disengageable by rotation to a uniform direction.
[0024]The 2nd thread part of a belt pulley, and the 1st thread part of a driving shaft, Since it is screwing disengageable by rotation to a uniform direction, if load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, on torque of a belt pulley, the 2nd thread part will rotate, junction to the 1st thread part and the 2nd thread part will separate, and a belt pulley and a driving shaft of a compressor will dissociate.
[0025]As for a clutch loess compressor of the invention according to claim 2, in the clutch loess compressor according to claim 1, the 1st thread part of said driving shaft is formed in said driving shaft and one.
[0026]Since the 1st thread part of a driving shaft is formed in a driving shaft and one, it can constitute a separation mechanism, without making part mark increase.
[0027]As for a clutch loess compressor of the invention according to claim 3, in the clutch loess compressor according to claim 1, the 2nd thread part of said belt pulley is formed in said belt pulley and one.
[0028]Since the 2nd thread part of a belt pulley is formed in a belt pulley and one, it can constitute a separation mechanism, without making part mark increase.
[0029]
[Embodiment of the Invention]Hereafter, this embodiment of the invention is described based on a drawing.
[0030]Drawing 1 is an important section cross-sectional view of the clutch loess compressor concerning one embodiment of this invention, and the figure in which drawing 1 (a) shows a transmitting-driving-force possible state, and drawing 1 (b) are the figures showing a driving force cut off state.
[0031]This clutch loess compressor is provided with the following.
The belt pulley 10 which rotates on the torque from the engine which is supported by the boss section 1a of the housing 1 pivotable via the radial bearing 5, and does not illustrate the axis of rotation (driving shaft) 2 as a center of rotation.
The solid of revolution 20 fixed to the end of the axis of rotation 2 which projects from the housing 1 with the bolt 6.

[0032]The belt pulley 10 consists of the cylindrical joining substrate 11 which adhered to the outer ring of spiral wound gasket 5a of the radial bearing 5, and the pulley body 12 by which fitting adherence was carried out in the peripheral face of the joining substrate 11. The inner ring of spiral wound gasket 5b of the radial bearing 5 has adhered to the boss section 1a.
[0033]The female screw (the 2nd screw thread) 11a is formed in the inner skin of the joining substrate 11.
[0034]The belt 30 is almost wound around the peripheral face of the pulley body 12, and the pulley body 12 is connected with the crankshaft of the engine which is not illustrated via the belt 30.
[0035]The female screw 11a and the male screw (the 1st screw thread) 20a which can be screwed are formed in the peripheral face of the solid of revolution 20. In this embodiment, the female screw 11a moves in the direction approaching housing, and separates from the male screw 20a.
[0036]The female screw 11a and the male screw 20a are screwed with predetermined clamping force (clamping force of the grade separated by rotation to a uniform direction).
[0037]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 10 is transmitted to the axis of rotation 2 via the female screw 11a, the male screw 20a, and the solid of revolution 20 (refer to drawing 1 (a)). As a result, the axis of rotation 2

rotates.

[0038]When the load torque by the side of a compressor becomes excessive beyond a preset value, this load torque is added to the screwing part of the female screw 11a and the male screw 20a. Therefore, the clamping force of the female screw 11a and the male screw 20a is resisted, the belt pulley 10 rotates, the female screw 11a and the male screw 20a separate, the belt pulley 10 moves in the direction of housing, and it dissociates from the solid of revolution 20 (refer to drawing 1 (b)). As a result, the belt pulley 10 is raced and transfer of the torque from the belt pulley 10 to the axis of rotation 2 is severed.

[0039]According to the clutch loess compressor of this embodiment, the female screw 11a of the belt pulley 10, and the male screw 20a of the solid of revolution 20, Since it is screwing with predetermined clamping force disengageable by rotation to a uniform direction, if the load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, the belt pulley 10 and the solid of revolution 20 of a compressor will dissociate, and the belt pulley 10 will race. Therefore, since excessive load torque is not added to an engine, an engine stall is prevented.

[0040]Since the belt pulley 10 and the solid of revolution 20 of a compressor dissociate certainly by the set-up load torque, the belt pulley 10 and the solid of revolution 20 do not repeat intermittence according to rotation of the belt pulley 10 like a conventional example, and change of engine number of rotations is prevented.

[0041]Since it is not the composition which junction to the female screw 11a and the male screw 20a only separates in an overloaded state, and fractures a pin like a conventional example, there is also no possibility of damaging an engine and other auxiliary machine classes by scattering of the fragment of the pin fractured after separation.

[0042]Drawing 2 is an important section sectional view of the clutch loess compressor concerning a 2nd embodiment of this invention, and the figure in which drawing 2 (a) shows a transmitting-driving-force possible state, and drawing 2 (b) are the figures showing a driving force cut off state. Identical codes are given to a 1st embodiment and identical parts, and the explanation is omitted.

[0043]The belt pulley 10 consists of the cylindrical joining substrate 11 by which spline fitting was carried out to the outer ring of spiral wound gasket 5a of the radial bearing 5, and the joining substrate 11 and the pulley body 12 formed in one in this clutch loess compressor.

[0044]Therefore, the joining substrate 11 is movable to shaft orientations to the radial bearing 5.

[0045]The inner ring of spiral wound gasket 5b of the radial bearing 5 has adhered to the boss section 1a.

[0046]The female screw (the 2nd screw thread) 11a is formed in the inner skin of the joining substrate 11.

[0047]The female screw 11a and the male screw (the 1st screw thread) 20a which can be screwed are formed in the peripheral face of the solid of revolution 20. In this 2nd embodiment, the female screw 11a moves in the direction which separates from housing, and separates from the male screw 20a.

[0048]The female screw 11a and the male screw 20a are screwed with predetermined clamping force (clamping force of the grade separated by rotation to a uniform direction).

[0049]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 10 is transmitted to the axis of rotation 2 via the solid of revolution 20 (refer to drawing 2 (a)). As a result, the axis of rotation 2 rotates.

[0050]When the load torque by the side of a compressor becomes excessive beyond a preset value, this load torque is added to the screwing part of the female screw 11a and the male screw 20a. Therefore, the clamping force of the female screw 11a and the male screw 20a is resisted, the belt pulley 10 rotates, the female screw 11a and the male screw 20a separate, and the belt

pulley 10 dissociates in the direction which separates from the solid of revolution 20 (refer to drawing 2 (b)). As a result, the belt pulley 10 is raced and transfer of the torque from the belt pulley 10 to the axis of rotation 2 is severed.

[0051]According to the clutch loess compressor of this 2nd embodiment, while being able to demonstrate the same effect as a 1st embodiment, since the belt pulley 10 and the radial bearing 5 are separated, wear of the radial bearing 5 can also be prevented.

[0052]It may **** for junction to the female screw 11a and the male screw 20a, and theadhesive strength not only by the clamping force of comrades but adhesives may be weighted.

[0053]As for the belt pulley 10 and the solid of revolution 20, forming using a resin material is preferred. By forming in this way, since rust does not occur by prolonged use, either, the female screw 11a and the male screw 20a are certainly separable.

[0054]Since neither the rolling balls 140 nor the spring 150 is used, it cannot be increased by part mark but they can reduce the manufacturing cost of a clutch loess compressor conventionally.

[0055]Although the female screw 11a was formed in the belt pulley 10 and the male screw 20a was formed in the solid of revolution 20 in a 1st embodiment, as other embodiments, the diameter of the solid of revolution 20 is enlarged, a female screw is formed in the solid of revolution 20, and it may be made to form a male screw in the belt pulley 10.

[0056]Although spline fitting of the outer ring of spiral wound gasket 5a and the belt pulley 10 of the radial bearing 5 is carried out in a 2nd embodiment, What is necessary is just to be the composition which the belt pulley 10 can move to the shaft orientations of the axis of rotation 2, and cannot move to the circumference of an axis in short, and it may be combination by one slot formed in the shaft orientations of the outer ring of spiral wound gasket 5a of the radial bearing 5, and the height formed in the inner skin of the belt pulley 10 (joining substrate 11) which engages with this slot. Although neither a slot nor a height is formed, but the outer ring of spiral wound gasket 5a of the radial bearing 5 is pressed fit by a predetermined pressure to the inner circumference of the joining substrate 11 and the cylindrical joining substrate 11 and the radial bearing 5 can move to shaft orientations, it is good for the circumference of an axis also as composition which is not moved but is rotated in one.

[0057]Since the joining substrate 11 and the pulley body 12 are formed in one, rather than a 1st embodiment, part mark can be reduced and the manufacturing cost of a clutch loess compressor can be reduced further.

[0058]

[Effect of the Invention]As explained above, according to the clutch loess compressor of the invention according to claim 1. Since the 2nd thread part will rotate and the 1st thread part and 2nd thread part will separate on the torque of a belt pulley if the load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, Transfer of the torque from a belt pulley to the axis of rotation of a compressor is refused certainly, change of engine number of rotations can be prevented, and since there is no member moreover fractured, after separation, neither an engine nor other auxiliary machine classes are damaged.

[0059]According to the clutch loess compressor of the invention according to claim 2 or 3, the 1st screw thread and 2nd screw thread can be separated certainly, without increasing part mark, and the manufacturing cost of a clutch loess compressor can be reduced.

[Translation done.]

TECHNICAL FIELD

[Field of the Invention]This invention relates to the clutch loess compressor which transmits the driving force of an external driving source to the driving shaft accommodated in housing via a belt pulley.

[Translation done.]

PRIOR ART

[Description of the Prior Art]In a compressor with a clutch, engine driving force is transmitted to the driving shaft of a compressor via an electromagnetic clutch.
[0003]When abnormalities, such as printing, occur inside a compressor, this compressor with a clutch cut the electromagnetic clutch based on the temperature and the pressure in a compressor, and has prevented the engine stall by the excessive load to an engine.
[0004]On the other hand, in the clutch loess compressor which does not use an electromagnetic clutch, when abnormalities, such as printing, occur inside a compressor, in order to prevent the engine stall by the excessive load to an engine, the mechanism in which the transmitting power from a belt pulley to the driving shaft of a compressor is severed is needed.
[0005]The important section cross-sectional view of the conventional clutch loess compressor which drawing 3 (a) shows a transmitting-driving-force possible state, and drawing 3 (b) are the important section cross-sectional views of the conventional clutch loess compressor in which a driving force cut off state is shown.
[0006]This clutch loess compressor 100 is provided with the belt pulley 110 which is supported by the housing 101 of a compressor pivotable via the bearing 105, and rotates on the torque from an engine, and the solid of revolution 120 with which the end of the axis of rotation 102 of a compressor was equipped.
[0007]The belt pulley 110 consists of the joining substrate 111 which adhered to the outer ring of spiral wound gasket 105a of the bearing 105, and the pulley body 112 by which fitting adherence was carried out in the peripheral face of the joining substrate 111. The pulley body 112 is connected with the engine via the belt 130.
[0008]The rolling balls 140 are put between the joining substrate 111 and the solid of revolution 120. The rolling balls 140 have fitted into the crevice 111a of the joining substrate 111 (belt pulley 110), and the crevice 120a of the solid of revolution 120, respectively.
[0009]With the bearing 105, the belt pulley 110 is energized with the spring 150 to the front-side (left of drawing 3).
[0010]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 110 is transmitted to the axis of rotation 102 via the rolling balls 140 and the solid of revolution 120 (refer to drawing 3 (a)).
[0011]On the other hand, when the load torque by the side of a compressor becomes more excessive than a preset value, the ingredient of the shaft direction of this load torque resists the spring power of the spring 150, the belt pulley 110 is energized to a rear-side, and the transmitting power from the belt pulley 110 to the solid of revolution 120 is severed.
[0012]Since the belt pulley 110 is always rotating, the rolling balls 140 secede from the crevice 111a of the belt pulley 110, and race it (refer to drawing 3 (b)).

[0013]Therefore, the engine stall by the excessive load by the side of a compressor is prevented.
[0014]Drawing 4 is an important section sectional view of other conventional clutch loess compressors.
[0015]The solid of revolution 220 attached firmly to the axis of rotation 202 with the clutch loess compressor 200 of drawing 3 to having put the rolling balls 140 in the clutch loess compressor 100 of drawing 3 between the joining substrate 111 (belt pulley 110) and the solid of revolution 120, With the two good broken pins 261,262, the joining substrate 211 which counters this solid of revolution 220 via the opening s was connected so that transmitting power was possible.
[0016]The belt pulley 210 consists of the joining substrate 211 and the pulley body 212, and the pulley body 212 is connected with the engine via the belt 230.
[0017]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 210 is transmitted to the axis of rotation 202 via the joining substrate 211, the good broken pin 261,262, and the solid of revolution 220.
[0018]On the other hand, when the load torque by the side of a compressor becomes more excessive than a preset value, in order that this load torque may concentrate on the good broken pin 261,262 and the good breaking parts 261a and 262a of the good broken pin 261,262 may fracture, the belt pulley 210 is raced.
[0019]Therefore, the engine stall by the excessive load by the side of a compressor is prevented.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention]As explained above, according to the clutch loess compressor of the invention according to claim 1. Since the 2nd thread part will rotate and the 1st thread part and 2nd thread part will separate on the torque of a belt pulley if the load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, Transfer of the torque from a belt pulley to the axis of rotation of a compressor is refused certainly, change of engine number of rotations can be prevented, and since there is no member moreover fractured, after separation, neither an engine nor other auxiliary machine classes are damaged.
[0059]According to the clutch loess compressor of the invention according to claim 2 or 3, the 1st screw thread and 2nd screw thread can be separated certainly, without increasing part mark, and the manufacturing cost of a clutch loess compressor can be reduced.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]However, since the rolling balls 140 which seceded from the crevice 111a of the belt pulley 110 repeat fitting and secession to the crevice 111a along with rotation of the belt pulley 110 according to the clutch loess compressor 100, The belt pulley 110 and the solid of revolution 120 repeat intermittence, the torque variation to an engine is repeated, and there is a possibility of fluctuating engine number of rotations.
[0021]According to the clutch loess compressor 200, the good broken pin 261,262 gets fatigued by repetition of an engine torque variation, The good broken pin 261,262 fractures also in the condition of use below the set-up overload, the fragment of the fractured good broken pin 261,262 disperses, the situation of being caught between the belt pulley 210 and the belt 230 occurs, and there is a possibility of damaging an engine and other auxiliary machine classes.
[0022]This invention was made in view of such a situation, that technical problem refuses certainly transfer of the rotational motion power from a belt pulley to the axis of rotation of a compressor by the set-up overload, and change of engine number of rotations can be prevented, And it is providing the clutch loess compressor which can prevent breakage of an engine or other auxiliary machine classes after separation.

[Translation done.]

MEANS

[Means for Solving the Problem]In order to solve the above-mentioned technical problem a clutch loess compressor of the invention according to claim 1, In a clutch loess compressor with which driving force of an external driving source is transmitted to a driving shaft accommodated in housing via a belt pulley with which said housing was equipped pivotable, The 1st thread part is provided in an end of said driving shaft which projects from said housing to the exterior, Said thread part and the 2nd thread part that can be screwed are provided in said belt pulley, and the 2nd thread part of said belt pulley and the 1st thread part of said driving shaft are screwed disengageable by rotation to a uniform direction.
[0024]The 2nd thread part of a belt pulley, and the 1st thread part of a driving shaft, Since it is screwing disengageable by rotation to a uniform direction, if load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, on torque of a belt pulley, the 2nd thread part will rotate, junction to the 1st thread part and the 2nd thread part will separate, and a belt pulley and a driving shaft of a compressor will dissociate.
[0025]As for a clutch loess compressor of the invention according to claim 2, in the clutch loess compressor according to claim 1, the 1st thread part of said driving shaft is formed in said driving shaft and one.
[0026]Since the 1st thread part of a driving shaft is formed in a driving shaft and one, it can constitute a separation mechanism, without making part mark increase.
[0027]As for a clutch loess compressor of the invention according to claim 3, in the clutch loess compressor according to claim 1, the 2nd thread part of said belt pulley is formed in said belt pulley and one.
[0028]Since the 2nd thread part of a belt pulley is formed in a belt pulley and one, it can constitute a separation mechanism, without making part mark increase.
[0029]
[Embodiment of the Invention]Hereafter, this embodiment of the invention is described based on a drawing.
[0030]Drawing 1 is an important section cross-sectional view of the clutch loess compressor concerning one embodiment of this invention, and the figure in which drawing 1 (a) shows a transmitting-driving-force possible state, and drawing 1 (b) are the figures showing a driving force cut off state.
[0031]This clutch loess compressor is provided with the following.
The belt pulley 10 which rotates on the torque from the engine which is supported by the boss section 1a of the housing 1 pivotable via the radial bearing 5, and does not illustrate the axis of rotation (driving shaft) 2 as a center of rotation.
The solid of revolution 20 fixed to the end of the axis of rotation 2 which projects from the

housing 1 with the bolt 6.

[0032]The belt pulley 10 consists of the cylindrical joining substrate 11 which adhered to the outer ring of spiral wound gasket 5a of the radial bearing 5, and the pulley body 12 by which fitting adherence was carried out in the peripheral face of the joining substrate 11. The inner ring of spiral wound gasket 5b of the radial bearing 5 has adhered to the boss section 1a.
[0033]The female screw (the 2nd screw thread) 11a is formed in the inner skin of the joining substrate 11.
[0034]The belt 30 is almost wound around the peripheral face of the pulley body 12, and the pulley body 12 is connected with the crankshaft of the engine which is not illustrated via the belt 30.
[0035]The female screw 11a and the male screw (the 1st screw thread) 20a which can be screwed are formed in the peripheral face of the solid of revolution 20. In this embodiment, the female screw 11a moves in the direction approaching housing, and separates from the male screw 20a.
[0036]The female screw 11a and the male screw 20a are screwed with predetermined clamping force (clamping force of the grade separated by rotation to a uniform direction).
[0037]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 10 is transmitted to the axis of rotation 2 via the female screw 11a, the male screw 20a, and the solid of revolution 20 (refer to drawing 1 (a)). As a result, the axis of rotation 2 rotates.
[0038]When the load torque by the side of a compressor becomes excessive beyond a preset value, this load torque is added to the screwing part of the female screw 11a and the male screw 20a. Therefore, the clamping force of the female screw 11a and the male screw 20a is resisted, the belt pulley 10 rotates, the female screw 11a and the male screw 20a separate, the belt pulley 10 moves in the direction of housing, and it dissociates from the solid of revolution 20 (refer to drawing 1 (b)). As a result, the belt pulley 10 is raced and transfer of the torque from the belt pulley 10 to the axis of rotation 2 is severed.
[0039]According to the clutch loess compressor of this embodiment, the female screw 11a of the belt pulley 10, and the male screw 20a of the solid of revolution 20, Since it is screwing with predetermined clamping force disengageable by rotation to a uniform direction, if the load torque of a compressor becomes beyond a preset value, i.e., an overloaded state, the belt pulley 10 and the solid of revolution 20 of a compressor will dissociate, and the belt pulley 10 will race. Therefore, since excessive load torque is not added to an engine, an engine stall is prevented.
[0040]Since the belt pulley 10 and the solid of revolution 20 of a compressor dissociate certainly by the set-up load torque, the belt pulley 10 and the solid of revolution 20 do not repeat intermittence according to rotation of the belt pulley 10 like a conventional example, and change of engine number of rotations is prevented.
[0041]Since it is not the composition which junction to the female screw 11a and the male screw 20a only separates in an overloaded state, and fractures a pin like a conventional example, there is also no possibility of damaging an engine and other auxiliary machine classes by scattering of the fragment of the pin fractured after separation.
[0042]Drawing 2 is an important section sectional view of the clutch loess compressor concerning a 2nd embodiment of this invention, and the figure in which drawing 2 (a) shows a transmitting-driving-force possible state, and drawing 2 (b) are the figures showing a driving force cut off state. Identical codes are given to a 1st embodiment and identical parts, and the explanation is omitted.
[0043]The belt pulley 10 consists of the cylindrical joining substrate 11 by which spline fitting was

carried out to the outer ring of spiral wound gasket 5a of the radial bearing 5, and the joining substrate 11 and the pulley body 12 formed in one in this clutch loess compressor.
[0044]Therefore, the joining substrate 11 is movable to shaft orientations to the radial bearing 5.
[0045]The inner ring of spiral wound gasket 5b of the radial bearing 5 has adhered to the boss section 1a.
[0046]The female screw (the 2nd screw thread) 11a is formed in the inner skin of the joining substrate 11.
[0047]The female screw 11a and the male screw (the 1st screw thread) 20a which can be screwed are formed in the peripheral face of the solid of revolution 20. In this 2nd embodiment, the female screw 11a moves in the direction which separates from housing, and separates from the male screw 20a.
[0048]The female screw 11a and the male screw 20a are screwed with predetermined clamping force (clamping force of the grade separated by rotation to a uniform direction).
[0049]When the load torque by the side of a compressor is less than a preset value, the torque of the belt pulley 10 is transmitted to the axis of rotation 2 via the solid of revolution 20 (refer to drawing 2 (a)). As a result, the axis of rotation 2 rotates.
[0050]When the load torque by the side of a compressor becomes excessive beyond a preset value, this load torque is added to the screwing part of the female screw 11a and the male screw 20a. Therefore, the clamping force of the female screw 11a and the male screw 20a is resisted, the belt pulley 10 rotates, the female screw 11a and the male screw 20a separate, and the belt pulley 10 dissociates in the direction which separates from the solid of revolution 20 (refer to drawing 2 (b)). As a result, the belt pulley 10 is raced and transfer of the torque from the belt pulley 10 to the axis of rotation 2 is severed.
[0051]According to the clutch loess compressor of this 2nd embodiment, while being able to demonstrate the same effect as a 1st embodiment, since the belt pulley 10 and the radial bearing 5 are separated, wear of the radial bearing 5 can also be prevented.
[0052]It may **** for junction to the female screw 11a and the male screw 20a, and theadhesive strength not only by the clamping force of comrades but adhesives may be weighted.
[0053]As for the belt pulley 10 and the solid of revolution 20, forming using a resin material is preferred. By forming in this way, since rust does not occur by prolonged use, either, the female screw 11a and the male screw 20a are certainly separable.
[0054]Since neither the rolling balls 140 nor the spring 150 is used, it cannot be increased by part mark but they can reduce the manufacturing cost of a clutch loess compressor conventionally.
[0055]Although the female screw 11a was formed in the belt pulley 10 and the male screw 20a was formed in the solid of revolution 20 in a 1st embodiment, as other embodiments, the diameter of the solid of revolution 20 is enlarged, a female screw is formed in the solid of revolution 20, and it may be made to form a male screw in the belt pulley 10.
[0056]Although spline fitting of the outer ring of spiral wound gasket 5a and the belt pulley 10 of the radial bearing 5 is carried out in a 2nd embodiment, What is necessary is just to be the composition which the belt pulley 10 can move to the shaft orientations of the axis of rotation 2, and cannot move to the circumference of an axis in short, and it may be combination by one slot formed in the shaft orientations of the outer ring of spiral wound gasket 5a of the radial bearing 5, and the height formed in the inner skin of the belt pulley 10 (joining substrate 11) which engages with this slot. Although neither a slot nor a height is formed, but the outer ring of spiral wound gasket 5a of the radial bearing 5 is pressed fit by a predetermined pressure to the inner circumference of the joining substrate 11 and the cylindrical joining substrate 11 and the radial bearing 5 can move to shaft orientations, it is good for the circumference of an axis also as composition which is not moved but is rotated in one.

[0057]Since the joining substrate 11 and the pulley body 12 are formed in one, rather than a 1st embodiment, part mark can be reduced and the manufacturing cost of a clutch loess compressor can be reduced further.

[Translation done.]

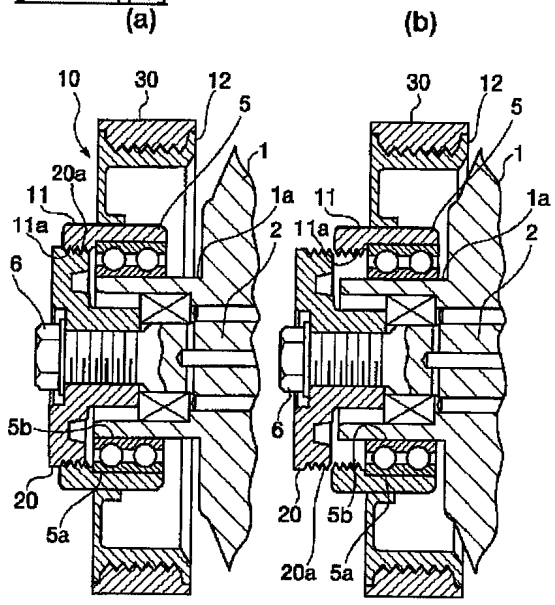
DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]Drawing 1 is an important section cross-sectional view of the clutch loess compressor concerning a 1st embodiment of this invention, and the figure in which drawing 1 (a) shows a transmitting-driving-force possible state, and drawing 1 (b) are the figures showing a driving force cut off state.
[Drawing 2]Drawing 2 is an important section sectional view of the clutch loess compressor concerning a 2nd embodiment of this invention, and the figure in which drawing 2 (a) shows a transmitting-driving-force possible state, and drawing 2 (b) are the figures showing a driving force cut off state.
[Drawing 3]The important section cross-sectional view of the conventional clutch loess compressor which drawing 3 (a) shows a transmitting-driving-force possible state, and drawing 3 (b) are the important section cross-sectional views of the conventional clutch loess compressor in which a driving force cut off state is shown.
[Drawing 4]Drawing 4 is an important section sectional view of other conventional clutch loess compressors.
[Description of Notations]
1 Housing
2 Axis of rotation (driving shaft)
10 Belt pulley
11a Female screw (the 1st thread part)
20a Male screw (the 2nd thread part)

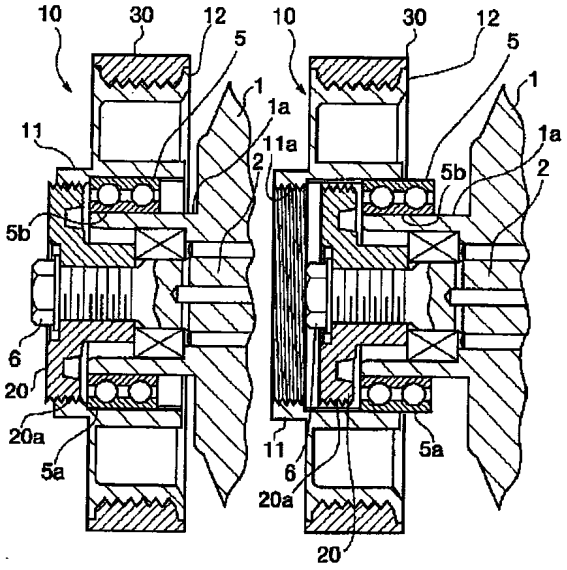
[Translation done.]

DRAWINGS

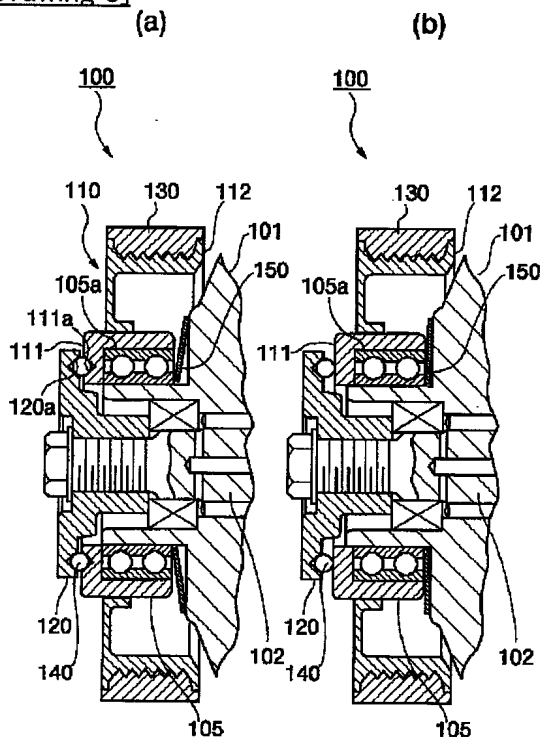
[Drawing 1]



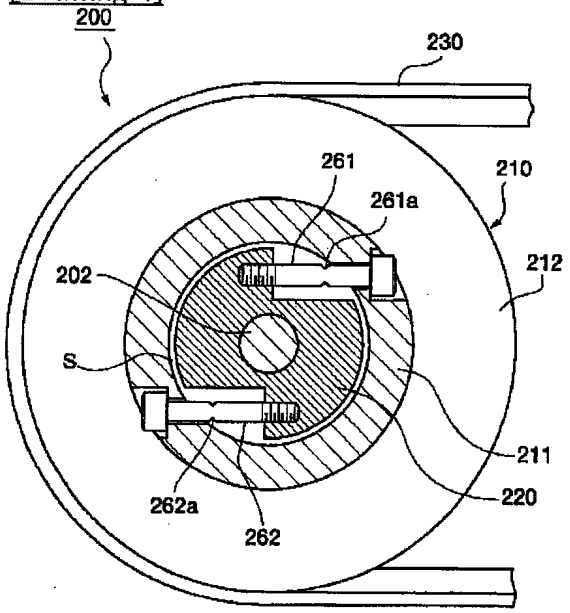
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]